From PC Speakers to Intercom

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Most loudspeaker systems supplied with inexpensive multimedia PCs are of a doubtful quality and quickly exchanged for ‘something better’. When the new kit is installed the low-fi stuff is banned to junior’s bedroom, the loft or some other storage space.

This article shows how to turn such cheap loudspeaker systems into a simple but effective and above all cheap intercom system.

In nearly all cases, one of the loudspeaker boxes contains a power supply, a stereo amplifier and a loudspeaker. The other box is a ‘slave’ and contains nothing but a loudspeaker.

Intercom system

A recipe for turning a set of cheap PC loudspeakers into an intercom is shown in **Figure 1**. Only the parts outside the shaded box need to be added. The slave loudspeaker acts as a microphone when the multi-pole change-over switch on or near the main unit is pressed. Some amplification is then required, hence the addition of transistors T1 and T2. Connecting the two amplifiers in the main unit in a balanced configuration effectively reduces the noise in the (long) cable between the intercom stations. Trimpot P1 is used to set the exact balance between the amplifiers when a relatively long line is used. P2 is optional and may only be needed in cases where extremely high noise levels are present.

In most, but not all, PC loudspeaker units, the on/off switch switches the positive supply voltage rather than the mains voltage. That allows the +V rail for the transistor stages to be taken from a terminal on the on/off switch.

Babyphone

For a babyphone it is not normally required to ‘talk’ to the remote station and the circuit may be modified to the one shown in **Figure 2**. If more sensitivity is required, the 47 kΩ resistors may be shorted out.

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